

CONCURRENCY AND COMPUTATION PRACTICE & EXPERIENCE

CONTENTS	Volume 20 Number 1	January 200	8
The Hydra Parallel Programm F. E. Powers Jr and G. Ala	ming System		1
Active target particle swarm YN. Zhang, QN. Hu and	optimization d HF. Teng	2	29
A practical method to analyz Y. Huang, H. Wang, W. Zl	ze workflow logic models hao and C. Xu	4	41
	page content block partition for focused cra Zuo		51
cluster systems	model of interconnection networks in large		75
	mance data transfer for the grid nico		99
	Volume 20 Number 2	February 20	08
	Special Issue		
Recent Advance	ces in Peer-to-Peer Systems and Security	(P2P 2006)	
Editorial B. Y. Zhao		1	25
	r-to-peer system cki, J. Wang, A. Bakker, J. Yang, A. Iosup, l Steen and H. J. Sips		27
	on in hybrid peer-to-peer networks	1	39
Exploring the feasibility of G. Swamynathan, B. Y. Z	proactive reputations Zhao and K. C. Almeroth	1	55

Robust incentives via multi-level Tit-for-Tat Q. Lian, Y. Peng, M. Yang, Z. Zhang, Y. Dai and X. Li	167
Exploring the robustness of BitTorrent peer-to-peer content distribution systems N. Liogkas, R. Nelson, E. Kohler and L. Zhang	179
Volume 20 Number 3 10 March	2008
Special Issue	
Selected Papers from the 2005 U.K. e-Science All Hands Meeting (AHM 2005)	
Editorial P. Watson and S. Cox	191
Performance prediction for a code with data-dependent runtimes S. A. Jarvis, B. P. Foley, P. J. Isitt, D. P. Spooner, D. Rueckert and G. R. Nudd	195
Performance analysis of a semantics-enabled service registry W. Fang, S. Miles and L. Moreau	207
e-Malaria: the schools Malaria project R. Geldhill, S. Kent, A. Milsted, R. Chapman, J. W. Essex and J. G. Frey	225
Payment and negotiation for the next generation Grid and Web J. Cohen, J. Darlington and W. Lee	239
An ontology-based approach to handling information quality in e-Science A. Preece, P. Missier, S. Embury, B. Jin and M. Greenwood	253
Steering via the image in local, distributed and collaborative settings J. D. Wood and H. Wright	265
AMUSE: autonomic management of ubiquitous e-Health systems E. Lupu, N. Dulay, M. Sloman, J. Sventek, S. Heeps, S. Strowes, K. Twidle, SL. Keoh and A. Schaeffer-Filho	277
FT-Grid: a system for achieving fault tolerance in grids J. Xu, P. Townend, N. Looker and P. Groth	297
Volume 20 Number 4 25 March	ı 2008
Special Issue	
First International Workshop on Workflow Systems in Grid Environments (WSGE	2006)
Editorial J. Chen and O. F. Rana	311
Towards workflow simulation in service-oriented architecture: an event-based approach Y. Zheng, Y. Fan and W. Tan	315

VOLUME CONTENTS

Specification, planning, and execution of QoS-aware Grid workflows within the Amadeus environment	
I. Brandic, S. Pllana and S. Benkner	33
A taxonomy of grid workflow verification and validation J. Chen and Y. Yang	34
A peak load control-based orchestration system for stable execution of hybrid services Y. Lee and D. Min	36
WdCM: a workday calendar model for workflows in service grid environments J. Liu, C. Zhou and J. Chen	37
GPFlow: an intuitive environment for web-based scientific workflow	

Volume 20 Number 5 10 April 2008

393

Special Issue The First Provenance Challenge

F	Editorial
L	attorial
	L. Moreau, B. Ludäscher, I. Altintas, R. S. Barga, S. Bowers, S. Callahan, G. Chin Jr,
	B. Clifford, S. Cohen, S. Cohen-Boulakia, S. Davidson, E. Deelman, L. Digiampietri,
	I. Foster, J. Freire, J. Frew, J. Futrelle, T. Gibson, Y. Gil, C. Goble, J. Golbeck, P. Groth,

A. Rygg, P. Roe, O. Wong and J. Sumitomo.....

D. A. Holland, S. Jiang, J. Kim, D. Koop, A. Krenek, T. McPhillips, G. Mehta, S. Miles,	
D. Metzger, S. Munroe, J. Myers, B. Plale, N. Podhorszki, V. Ratnakar, E. Santos,	
C. Scheidegger, K. Schuchardt, M. Seltzer, Y. L. Simmhan, C. Silva, P. Slaughter,	
E. Stephan, R. Stevens, D. Turi, H. Vo, M. Wilde, J. Zhao and Y. Zhao	409
Automatic capture and efficient storage of e-Science experiment provenance	
R. S. Barga and L. A. Digiampietri	419

A Semantic Web approach to the provenance challenge	
J. Golbeck and J. Hendler	43

J. Golbeck and J. Hendler	431
Query capabilities of the Karma provenance framework Y. L. Simmhan, B. Plale and D. Gannon	441
gLite Job Provenance—a job-centric view A. Křenek, J. Sitera, L. Matyska, F. Dvořák, M. Mulač, M. Ruda and Z. Salvet	453
Mining Tayerna's semantic web of provenance	

Mining Taverna's semantic web of provenance	
J. Zhao, C. Goble, R. Stevens and D. Turi	46
Tackling the Provinces Challenge and layer at a time	

Tackling the Provenance Challenge one layer at a time	
C. Scheidegger, D. Koop, E. Santos, H. Vo, S. Callahan, J. Freire and C. Silva	473

Automatic capture and reconstruction of computational provenance J. Frew, D. Metzger and P. Slaughter	485
Addressing the provenance challenge using ZOOM S. Cohen-Boulakia, O. Biton, S. Cohen and S. Davidson	497
From computation models to models of provenance: the RWS approach B. Ludäscher, N. Podhorszki, I. Altintas, S. Bowers and T. McPhillips	507
Provenance in collection-oriented scientific workflows S. Bowers, T. M. McPhillips and B. Ludäscher	519
PASSing the provenance challenge D. A. Holland, M. I. Seltzer, U. Braun and KK. Muniswamy-Reddy	531
Applying content management to automated provenance capture K. L. Schuchardt, T. Gibson, E. Stephan and G. Chin Jr	541
Tracking provenance semantics in heterogeneous execution systems J. Futrelle and J. Myers	555
Tracking provenance in a virtual data grid B. Clifford, I. Foster, JS. Voeckler, M. Wilde and Y. Zhao	565
Extracting causal graphs from an open provenance data model S. Miles, P. Groth, S. Munroe, S. Jiang, T. Assandri and L. Moreau	577
Provenance trails in the Wings/Pegasus system J. Kim, E. Deelman, Y. Gil, G. Mehta and V. Ratnakar	587
Volume 20 Number 6 25 April	2008
Special Issue	
Hot Topics in Peer-to-Peer Systems (HoTP2P 2006)	
Editorial L. V. Mancini	599
Segregation and scheduling for P2P applications with the interceptor middleware system C. Anglano	601
Design and analysis of a scalable algorithm to monitor chord-based p2p systems at runtime	625
A. Binzenhöfer, G. Kunzmann and R. Henjes Optimizing the finger tables in Chord-like DHTs	625
G. Chiola, G. Cordasco, L. Gargano, A. Negro and V. Scarano	643
Neighbourhood maps: decentralized ranking in small-world P2P networks M. Dell'Amico	659
Linyphi: creating IPv6 mesh networks with SSR P. Di, J. Eickhold and T. Fuhrmann	675

VOLUME CONTENTS

vii

P2PPerf: a framework for simulating and optimizing peer-to-peer-distributed computing applications	
JB. Ernst-Desmulier, J. Bourgeois and F. Spies	693
On the evaluation of flooding-based search strategies in peer-to-peer networks R. Gaeta and M. Sereno	713
Lightweight emulation to study peer-to-peer systems L. Nussbaum and O. Richard	735
Volume 20 Number 7 Mag	y 2008
Special Issue	
Second International Conference on Semantics, Knowledge and Grid (SKG 200	(6)
T. Para de la Contraction de l	
Editorial G. C. Fox and H. Zhuge	751
Semantic knowledge facilities for a web-based recipe database system supporting personalization	731
L. Wang, Q. Li, G. Dong and Y. Li	753
Semantic patterns for user-interactive question answering T. Hao, D. Hu, L. Wenyin and Q. Zeng	783
XML Metadata Services M. S. Aktas, G. C. Fox, M. Pierce and S. Oh	801
Efficient global checkpointing algorithms for mobile agents J. Yang, J. Cao and W. Wu	825
Semantic representation of scientific documents for the e-science Knowledge Grid X. Luo, N. Fang, B. Hu, K. Yan and H. Xiao	839
Resource space view tour mechanism J. Liu, X. Li and L. Feng	863
Modeling language and tools for the semantic link network H. Zhuge, K. Yuan, J. Liu, J. Zhang and X. Wang	885
Volume 20 Number 8 10 Jun	ne 2008
Methodology for modelling SPMD hybrid parallel computation L. M. Liebrock and S. P. Goudy	903
High-level distribution for the rapid production of robust telecoms software: comparing C++ and ERLANG J. H. Nyström, P. W. Trinder and D. J. King	941

A definition of and linguistic support for partial quiescence B. YK. Man, H. Ning (Angela) Chan, A. J. Gallagher, A. S. Goundan, A. W. Keen	
and R. A. Olsson	969
InterGrid: a case for internetworking islands of Grids M. Dias de Assunção, R. Buyya and S. Venugopal	997
Volume 20 Number 9 25 June	2008
Special Issue	
Middleware for Grid Computing: Future Trends (MGC 2006)	
Editorial B. Schulze, D. Abramson, R. Nandkumar and R. Buyya	1025
A performance-oriented adaptive scheduler for dependent tasks on grids L. F. Bittencourt and E. R. M. Madeira	1029
Tunable scheduling in a GridRPC framework A. Amar, R. Bolze, Y. Caniou, E. Caron, A. Chis, F. Desprez, B. Depardon, JS. Gay, G. Le Mahec and D. Loureiro.	1051
Coordinating access control in grid services D.W. Chadwick, L. Su and R. Laborde	1071
A service-oriented Grid environment for integration of distributed kidney models and resources X. Chu, A. Lonie, P. Harris, S. R. Thomas and R. Buyya	1095
A replicated file system for Grid computing J. Zhang and P. Honeyman	1113
Volume 20 Number 10 July	2008
Analyzing the feasibility of building a new mass storage system on distributed resources H. H. Huang, J. F. Karpovich and A. S. Grimshaw	1131
Java multithreading-based parallel approximate arrow-type inverses G. A. Gravvanis and V. N. Epitropou	1151
An adaptive extension library for improving collective communication operations O. Hartmann, M. Kühnemann, T. Rauber and G. Rünger	1173
Babylon: middleware for distributed, parallel, and mobile Java applications W. van Heiningen, S. MacDonald and T. Brecht	1195
Distributing RePast agent-based simulations with HLA R. Minson and G. K. Theodoropoulos	1225

Volume 20 Number 11

10 August 2008

Special Issue

UK e-Science All Hands Meeting 2006

Editorial	
J. Xu	1257
Dynamic data replication in LCG 2008 C. Nicholson, D. G. Cameron, A. T. Doyle, A. P. Millar and K. Stockinger	1259
GOLD infrastructure for virtual organizations P. Periorellis, N. Cook, H. Hiden, A. Conlin, M. D. Hamilton, J. Wu, J. Bryans, X. Gong, F. Zhu, R. Smith, P. Watson and A. R. Wright	1273
Service-oriented approach to collaborative visualization H. Wang, K. W. Brodlie, J. W. Handley and J. D. Wood	1289
An experiment with reflective middleware to support grid-based flood monitoring D. Hughes, P. Greenwood, G. Blair, G. Coulson, P. Grace, F. Pappenberger, P. Smith and K. Beven.	1303
Simulation of clinical electrophysiology in 3D human atria: a high-performance computing and high-performance visualization application S. Kharche, G. Seemann, L. Margetts, J. Leng, A. V. Holden and H. Zhang	1317
Job submission to grid computing environments R. P. Bruin, T. O. H. White, A. M. Walker, K. F. Austen, M. T. Dove, R. P. Tyer, P. A. Couch, I. T. Todorov and M. O. Blanchard	1329
PERMIS: a modular authorization infrastructure D. Chadwick, G. Zhao, S. Otenko, R. Laborde, L. Su and T. A. Nguyen	1341
Volume 20 Number 12 25 August	2008
QoS modeling and analysis of component-based software systems: a stochastic approach Y. Xia, H. Wang, W. Feng and Y. Huang	1359
Parallel object monitors D. Caromel, L. Mateu, G. Pothier and É. Tanter	1387
The effect of uncontrolled concurrency on model checking D. M. Carter, R. Aygun, G. Cox, M. E. Weisskopf and L. Etzkorn	1419
Usability levels for sparse linear algebra components M. Sosonkina, F. Liu and R. Bramley	1439
Meteor: a middleware infrastructure for content-based decoupled interactions in pervasive grid environments N. Jiang, A. Quiroz, C. Schmidt and M. Parashar	1455

Volume 20 Number 13	10 September 2	008
State of the art in heterogeneous strong migration of computations		
A. Milanés, N. Rodriguez and B. Schulze	1	485
On the effectiveness of runtime techniques to reduce memory sharing over distributed Java implementations M. Lobosco, O. Loques and C. L. de Amorim		509
Parallel processing of remotely sensed hyperspectral imagery: full-pixel verification A. J. Plaza	ersus	539
Parallel tiled QR factorization for multicore architectures A. Buttari, J. Langou, J. Kurzak and J. Dongarra		1573
A toolkit for modelling and simulating data Grids: an extension to GridSi A. Sulistio, U. Cibej, S. Venugopal, B. Robic and R. Buyya		1591
Volume 20 Number 14	25 September 2	2008
Special Issue		
Grids and Geospatial Information Systems		
Editorial		
M. E. Pierce		1611
The development of a geospatial data Grid by integrating OGC Web serving Globus-based Grid technology L. Di, A. Chen, W. Yang, Y. Liu, Y. Wei, P. Mehrotra, C. Hu and D. W.		1617
Towards an integrated GIS-based coastal forecast workflow		
G. Allen, P. Bogden, G. Creager, C. Dekate, C. Jesch, H. Kaiser, J. McL G. W. Stone and X. Zhang		1637
Building and applying geographical information system Grids		
G. Aydin, A. Sayar, H. Gadgil, M. S. Aktas, G. C. Fox, S. Ko, H. Bulut and M. E. Pierce		1653
Grid computing of spatial statistics: using the TeraGrid for $G_i^*(d)$ analysis		
S. Wang, M. Kathryn Cowels and M. P. Armstrong	• • • • • • • • • • • • •	1697
Volume 20 Number 15	October	2008
Special Issue		
Second International Workshop on Workflow Managem Applications in Grid Environments (WaGe2007)		
Editorial		
J. Chen and Y. Lee		1721

The Grid Resource Broker Workflow Engine	
M. Cafaro, I. Epicoco, M. Mirto, D. Lezzi and G. Aloisio	1725
A context- and role-driven scientific workflow development pattern	
W. Dou, J. Chen, S. Fan and S. C. Chueng	1741
Performance evaluation of virtual machine-based Grid workflow system	
L. Wang, M. Kunze and J. Tao	1759
Checkpointing schemes for Grid workflow systems	
Z. Li and Y. Xiang	1773
Discovery of textual knowledge flow based on the management of knowledge maps	
X. Luo, Q. Hu, W. Xu and Z. Yu	1791
A throughput maximization strategy for scheduling transaction-intensive workflows on SwinDeW-G	
K. Liu, J. Chen, Y. Yang and H. Jin	1807
A service-oriented business performance evaluation model and the performance-aware service selection method	
B. Liu, Y. Fan and S. Huang	1821
Grid workflow optimization regarding dynamically changing resources and conditions E. Schikuta, H. Wanek and I. Ul Haq	1837
Volume 20 Number 16 Novemb	er 2008
KOALA: a co-allocating grid scheduler	
H. Mohamed and D. Epema	1851
Getting more from your multicore: exploiting OpenMP from an open-source numerical scripting language	L
M. S. Noble	1877
Structural testing criteria for message-passing parallel programs	1003
S. R. S. Souza, S. R. Vergilio, P. S. L. Souza, A. S. Simão and A. C. Hausen	1893
Experimental study on the extraction and distribution of textual domain keywords X. Luo, N. Fang, W. Xu, S. Yu, K. Yan and H. Xiao	1917
The Weka4WS framework for distributed data mining in service-oriented Grids D. Talia, P. Trunfio and O. Verta	1933
Cooperative load balancing in distributed systems	1953
D. Grosu, A. T. Chronopoulos and M. Y. Leung	1933

Volume 20 Number 17

10 December 2008

Special Issue

Selection of Best Papers of the VLDB Data Management in Grids Workshop (VLDB DMG 2007)

Editorial	
JM. Pierson and H. Kosch	1977
Toward replication in grids for digital libraries with freshness and correctness guarantees F. Akal, H. Schuldt and HJ. Schek	1981
Security in distributed metadata catalogues N. Santos and B. Koblitz	1995
A metadata management framework for dynamic information integration J. Göres and S. Dessloch	2009
Dynamic allocation in a self-scaling cluster database T. Rabl, M. Pfeffer and H. Kosch	2025
Parallel query processing for OLAP in grids N. Kotowski, A. A. B. Lima, E. Pacitti, P. Valduriez and M. Mattoso	2039
The XtreemFS architecture—a case for object-based file systems in Grids F. Hupfeld, T. Cortes, B. Kolbeck, J. Stender, E. Focht, M. Hess, J. Malo, J. Marti and E. Cesario	2049
Towards a Noah's ark for the upcoming data deluge A. Bassi, S. Denazis and P. Giacomin	2061
Autonomics and data management N. W. Paton	2075
Volume 20 Number 18 25 December	2008
Scalable Grid-wide capacity allocation with the SweGrid Accounting System (SGAS) P. Gardfjäll, E. Elmroth, L. Johnsson, O. Mulmo and T. Sandholm	2089
A Grid-enabled problem-solving environment for advanced reservoir uncertainty analysis Z. Lei, G. Allen, P. Chakraborty, D. Huang, J. Lewis, X. Li and C. D. White	2123
Parallel Programming on a High-Performance Application-Runtime W. J. Goscinski and D. Abramson	2141
Efficient and fair scheduling for two-level information broadcasting systems BH. Lee, SH. Lim, JH. Kim and WD. Cho	2179
VOLUME CONTENTS	ii

